

XXII. *Observations on the Species of Fedia.* By JOSEPH WOODS, Esq., F.L.S.

Read April 21st, 1835.

MODERN botanists are generally agreed that the several varieties of the *Valeriana Locusta* of Linnæus, with the addition of one or two allied species, form a very natural genus, separated from Valerian by habit as well as by the want of a feathery crown to the seed. For this they have mostly adopted the name of *Fedia*, of uncertain derivation, though supposed by some authors to come from *Hædus*, or *Fædus*, a kid. It was first introduced by Adanson, but, according to De Candolle, not applied by him to this genus. De Candolle himself again separates from this group two plants, which differ from the rest in having a ringent flower with a long tube, and only two stamens. To these he confines the name of *Fedia*, and calls the others *Valerianella*. I am not disposed to follow him in the separation of these genera, and still less so in his nomenclature. Even if out of respect for Tournefort, whose name Linnæus appears to have altered merely to please his ear, we prefer *Brunella* to *Prunella*; and if we restore *Lampsana*, a name adopted by Vaillant from Dioscorides, to the place of *Lapsana*, there is still no sufficient reason for adopting such a name as *Valerianella*. The rules given by Linnæus for the formation of generic names are perhaps in some instances arbitrary and fanciful; but those which direct us to avoid diminutives and names compounded of those of other genera are so evidently just and reasonable, that one is apt to suspect that those who refuse them are under the influence of some prejudice, or are guided by national partiality. The French botanists complain that Linnæus was sometimes misled by an unworthy jealousy of the talents and reputation of Tournefort. Do they not themselves show a wish to depreciate Linnæus, and to keep him out of sight as much as possible?

We are indebted, I believe, to De Candolle for pointing out some excellent subdivisions in this genus, taken from the structure of the fruit. He distinguishes:

1. **LOCUSTÆ**, with one or two empty cells, and a gibbous, corky, or spongy mass at the back of the fertile one.

2. **PSILOCÆLÆ**. The two empty cells each reduced to a hollow nerve. The description of the genus assumes the existence of empty cells; otherwise, perhaps, it would be better to say that the fruit in this section had only one cell. The nerve is not always sensibly hollow; and a similar nerve sometimes exists, in *F. Auricula*, for instance, on the surface of each empty cell.

3. **PLATYCÆLÆ**. Two empty cells, as large, or nearly as large, as the fertile ones. Section of the fruit rounded.

4. **SELENOCÆLÆ**. Section of the fruit crescent-shaped, with two empty cells.

These divisions once pointed out cannot be neglected by succeeding botanists; but we may be permitted to introduce some modifications in the divisions themselves, and in their arrangement, and some alterations in the species assigned to each.

*Fedia Cornucopiæ* (*Fedia* of De Candolle). This plant seems not to be frequent, though widely scattered, on the coasts of the Mediterranean. I have not seen the fruit in a perfect state. A second species, *F. scorpioides*, with which I am unacquainted, has stalked leaves and unilateral spikes of flowers. It is a native of Tangier.

#### Division 1. **LOCUSTÆ**.

De Candolle separates this into two sections, the first having only one, and the latter two barren cells. This character is hardly sufficient, since in *V. olitoria* (fig. 1.), which is at the head of the first division, we not unfrequently find the trace of a dissepiment separating, more or less completely, the empty cell into two parts. Reichenbach says that the fruit of this species is sometimes hairy. I have never met with it so. But this is a character which seems very variable in the genus.

Two other species are enumerated. *Valerianella radiata*, which the author suspects to be an American variety of *V. olitoria*, but which, from specimens shown me by Mr. Bentham, seems rather to be a name for several European species when they have been carried over to America; and *V. exscapa*, a plant of Caucasus, described as having two fertile cells.

The second subdivision of the **LOCUSTÆ**, where the separation of the cells is uniformly complete, contains three names: *V. turgida*, *V. gibbosa*, and *V. co-*

*stata*. A comparison of the specimens from the Chev. de Steven, in the herbarium of Sir J. E. Smith, with the description in the Moscow Transactions, has convinced me that the first of these belongs to the *Selenocæle*, and is a species which I have gathered at Rome. The second, found by Gasparini on the mountains of the Madonia, and published by Gussone in the *Floræ Siculæ Prodromus*, is supposed by De Candolle to be nearly allied to *V. tur̄gida*. The figure of the fruit, however, which he has given in the *Mémoire sur la Famille des Valérianées*, is hardly distinguishable from that of *V. olitoria*, from which this plant seems chiefly to differ by its quite entire bractææ. The third is from the South of Tauria. It is described as smaller than the two preceding, and as having a deep furrow on each barren cell. I have seen no specimen of either of the two last.

#### Div. 2. PSILOCÆLÆ:

In following the order of the *Prodromus*, we now come to the *Psilocæle*, although some of the *Selenocæle* appear to be more closely allied to the *Locustæ* both in habit and in artificial character. De Candolle has two subdivisions of *Psilocæle*. The first, with recurved teeth, contains *V. uncinata* (fig. 2.) and *V. echinata*. The former is a plant from Caucasus, which has two distinct barren cells at the base of the fruit, but much smaller than the fertile one. A section of the upper part of the seed-vessel exhibits, besides the fertile cell which extends into the crown, three other openings filled with a white pith-like substance. That near the base shows also a pith-filled opening on the side of each barren cell. In *V. echinata*, the second cell is nearly as large as the fertile one, and it is uniformly this cell, and not that containing the seed, which is prolonged into the largest horn;—the three horns which terminate the fruit being in this species a prolongation of the cells, and not a distinct calyx. This description seems inconsistent with the admission of this plant among the *Psilocæle*, where it is nevertheless placed by Soyer Willemet as well as by De Candolle. Of the five species forming the subdivision marked by an erect calyx, *V. Morisonii* var.  $\beta$ . *leiocarpa*, is according to De Candolle the *Fedia dentata* of *Engl. Bot. t. 1370.*; but he also cites Reichenbach, *Pl. Cr. t. 62.* (fig. 3.), and the same work, *t. 63.*, for the *V. Morisonii*  $\alpha$ . with hairy fruit. Both these figures appear to me to represent varieties of *F. eriocarpa*, while that of *Engl. Bot.* is either *F. dentata*, or its variety *F. mixta*. The latter

differs from the usual appearance of *F. dentata* in having a rounder fruit, a less elongated crown, and the teeth at the base of the crown larger in proportion. I have never seen it hairless, but it probably varies in this respect, and *F. dentata* is sometimes hairy. Fig. 4. is *F. dentata* from Llangollen. Fig. 5. a hairy variety from Sussex. Fig. 6. *F. mixta* from Dr. Hooker. This seems also to be the plant of De Candolle. Fig. 7. is perhaps also *F. mixta*. The specimens came from Llandydno. *Valerianella puberula* is borrowed from Gussone, in whose description the *fructu non umbilicato* is put in strong opposition to the *fructu umbilicato* in the character of *F. eriocarpa*. I should not have placed the two plants in the same section, but since De Candolle has added to the former his accustomed “(v. s.),” *vidi siccam*, I cannot refuse to admit it among the one-celled *Fediæ*. De Candolle quotes to *V. puberula* the *F. microcarpa* of Reichenbach, *Pl. Cr. t. 114.* (fig. 8.), a figure to which Gussone refers for his *F. microcarpa* and not for his *F. puberula*. Fig. 9. is *F. microcarpa* from Italy; fig. 10. the same from Gussone. *F. truncata*, a native of Crete, (fig. 10\*. copied from Reichenbach,) seems to differ from *F. microcarpa* in little but the much greater expansion of the blunt, entire, oblique crown. The seeds of the *F. microcarpa* of Gussone in specimens communicated to Mr. Bentham from the author, have, on the contrary, a smaller crown than that figured by Reichenbach, and the whole seed is smaller, and covered with hairs instead of the short points which make the fruit of Reichenbach’s plant rather rough than hairy. The *F. sphaerocarpa* of Gussone I should have suspected to be also the *F. microcarpa* of Reichenbach, if he had not himself decided differently. There remains to be noticed *F. eriocarpa*, a plant which varies so much in the expansion of the crown as to make it difficult to draw the line between it and *F. mixta*. Fig. 11. is copied from De Candolle’s *Mémoire sur les Valérianées*. Fig. 12. was gathered at Perigueux. Fig. 13. in Italy. Fig. 14., which is quite smooth, at Saintes. Fig. 13. is the most common appearance. The rigid habit, the fruitstalks thickened upwards, and the sessile flowers of this species, give to it something of the appearance of *F. echinata*. *F. eriocarpa*, according to De Candolle, has 6 teeth in the crown; *F. mixta* only 3. This leads me to some remarks on the teeth of these plants. In *F. coronata* and its allied species there is a tooth in the centre of the anterior face of the fruit, *i. e.* above the junction of the two abortive cells; and there is

also a tooth opposite to this, and, consequently, the number of teeth in the imaginary regular type must always be even. When the contrary is the case, it is because an additional intermediate tooth is developed on one side more than on the other, producing some degree of irregularity; or, perhaps, we should rather say that one of the lateral segments—for it is there principally that the irregularity takes place—is more subdivided than its opposite one. In the *Psilocælae* the case is exactly the reverse. The middle tooth of the anterior face is wanting, and the number of teeth in the type must be considered as uneven. But the lateral teeth in this division are usually small, and often unequally developed, so that there is one tooth, or perhaps even two, more on one side than on the other. Thus an even number of teeth may occasionally occur, but it ought hardly to enter into the specific character. Reichenbach's figures often attribute to the *Psilocælae* a tooth in the centre of the anterior face. I can only say that I have never met with such a circumstance.

### Div. 3. PLATYCÆLÆ.

We now pass to the *Platyçælæ*. In several species of this division the barren cells are contiguous at top and bottom, so that a section of the fruit would there be nearly round, but they are separate in the middle. In *F. Auricula* (fig. 15.) they are contiguous for their whole length; and in *F. echinata* (fig. 16.) they may be said to touch in their whole length, but without having a common partition. The two cells are not in any part united in any of them. *F. uncinata* and *F. echinata*, both of which I incline to place in this division, have been already mentioned. The former was brought by the Chev. de Steven from Caucasus, but has not, I believe, hitherto been found in Europe; the latter is frequent in the neighbourhood of the Mediterranean. In *F. Auricula* the inner sides of the barren cells sometimes shrink away in drying, and give to the fruit somewhat of the appearance of that of the *Selenocælae*, and well characterized by the expression "*fructu anticè rimoso*," used by De Candolle to some of that tribe. *F. tridentata* (fig. 17.) of Reichenbach is a variety of *F. Auricula*. The terminating tooth in this species is often very small, thin, membranous and fragile. Gaudin describes it 3—6-dentata. I have never observed more than 3 teeth. De Candolle's expression, "*calycis limbo acutè auriculiformi*" would suit some of my specimens, but the tooth is not always

acute. This is a common plant throughout the greater part of France, and it is probably the var. *tridentata*, which is described as *V. dentata* by De Candolle. I have seen a Cornish specimen in the herbarium of Mr. Borrer; and if the dissections added by Dr. Hooker to the figure of *F. olitoria* in the *Flora Londinensis* belong to this plant, we must suppose it not very rare in England.

*F. pumila* (fig. 18.) has the barren cells separate in the middle and contiguous at the extremities. The appearance thus obtained I suppose to be what is meant by the term *anticè exarato* of De Candolle, while the *anticè umbilicato* of Gussone I rather refer to the small flat surface surrounded by a prominent rib, which forms the external peculiarity of the *Psilocæle*. Unfortunately, they neither of them use the other term in their original descriptions, and the term "umbilicate" might be applied to either appearance. The capsule of *F. pumila* ends in three short points, concavely truncate, which appear rather to be an extension of the cells than the teeth of a calyx.

*F. sphaerocarpa*. De Candolle, not having seen specimens, adopts the description of Gussone, perhaps with some reference to the figure in *Guss. Pl. Rav. t. 4.*, which I have not seen. He expresses a doubt if it be different from *V. pumila*, but the description, "*faciè umbilicato*," would incline me to place it among the *Psilocæle*. There is one other plant belonging to that division of the *Platyæle* in which the teeth of the crown are not hooked. This is *V. trigonocarpa*, a native of the neighbourhood of Constantinople. The name expresses its most distinguishing character. I have seen neither specimens nor figure.

The species of this division, which have hooked teeth, noticed in De Candolle's *Prodromus* are two,—*F. hamata* and *F. coronata*. If, however, the *V. platyloba* (*F. rotata* of Reichenbach) do not also belong to it, I am afraid we can hardly consider the *Selenocæle* as forming a very natural division. The difference between *V. hamata* and *coronata* is not very well marked by the description in the *Prodromus*, resting almost entirely on the villous mat which covers the bottom of the calyx in the latter species, while the former is in that part entirely devoid of hairs. This is a useful distinction; but from my own specimens, gathered in the South of France early in the summer of 1831, I should describe *F. hamata* (fig. 19.) as having a broad margin ending in 6 subulate teeth; each tooth terminating in a hooked awn, with rounded inter-

mediate sinuses. *F. coronata* (fig. 20.), on the contrary, has the teeth so deeply divided that they might almost be said to form a calyx of six leaves, leaving little or no continuous margin, and the sinuses are acute. The form of the whole fruit is strictly campanulate. *F. discoidea* of Reichenbach I take to be *F. hamata* with divided teeth. His *F. coronata* is the plant of De Candolle. To this we must also refer the *F. sicula* of Gussone, while the *F. coronata* of this author is the *V. hamata* of De Candolle.

I believe I may add to this division a plant which I gathered at Athens in 1816, with slender ciliate divisions to the crown, separate down to the base, and which may be called *F. ciliata* (fig. 22.); but the only clear specimen which I have is not far enough advanced to exhibit fully the character of the fruit.

*F. vesicaria* (fig. 23.) is correctly described by the Chev. Steven as having a fruit with five cells. It may therefore occupy a division by itself; a distinction to which it seems entitled by the peculiarity of its inflated calyx.

#### Div. 4. SELENOCELEÆ.

We now arrive at the last division of De Candolle, in which he places two species,—*V. platyloba*, a name of Dufresne, synonymous with the *F. rotata* of Reichenbach, as corrected in page 93 of *Pl. Cr.*, and *V. carinata*, the fruit of which is not at all keeled. The appearance of the fruit in these species has nothing in common, except the peculiarity which forms the artificial character; and this, as figured by De Candolle in his *Mémoire sur la Famille des Valérianées*, and by Reichenbach in his *Plantæ Criticæ*, does not seem very clear, depending rather on the convex or concave line assumed by the internal face of each empty cell than on any more durable or important difference. This line might be supposed to take a different curve without any change of structure; and I have already noticed that it is sometimes observable in the dried seeds of *F. Auricula*, a plant certainly not belonging to this division. In the plates of De Candolle (fig. 25.) and of Reichenbach (fig. 24.) the dissepiment between these barren cells is represented as very narrow. In some specimens of *F. carinata*, gathered by Mr. E. Forster near Ongar in Essex (fig. 27.), the dissepiment is much broader, the cells lying side by side. Of the specimens of Steven (fig. 26.) I did not presume to make a section. In the *F. turgida*, a plant clearly belonging to this division by the crescent-shaped

section of its fruit, the cells are detached and have no common dissepiment. A contraction between the barren cells and the fertile one forming a slight furrow on each side of the fruit is marked in both species, and I find it to exist in *F. carinata*; but according to the figure of De Candolle, such a depression must also sometimes exist in *F. hamata*, and it does not exist in *F. turgida*. On the whole, it appears that this section requires a re-examination, but I have not at present sufficient materials to define it more accurately. My attention at Rome was not drawn to *F. turgida* (fig. 28.) until the plant was so far advanced as to offer me no flowers and hardly any seed. Its general appearance so closely resembles that of *F. olitoria* that it does not press on our attention. Gussone describes *F. carinata* as "*ecoronato*," which made me at one time imagine that his plant might be the *F. turgida*, but his account agrees in other respects too precisely with the *F. carinata* to allow this suspicion to remain. The *F. brachycarpa* of Bertoloni is, perhaps, the *V. platyloba* of Dufresne and De Candolle. The latter botanist says that his plant is found "in regione Mediterraneâ," but with a mark of doubt. Reichenbach only says of his *F. rotata*, that it came from the botanic garden at Göttingen.

Hitherto I have confined myself to characters derived from the fruit, which seems in this genus to furnish the best specific distinctions. We must not, however, altogether reject other particulars. Gussone, who has ten species in the *Prodromus Floræ Siculæ*, and seems carefully to have studied the subject, divides the *Fediae* into those whose bractæ are appressed when the plant is in fruit, and those where they are spreading; and the character first mentioned in the specific phrase is that of a stem rough at the angles, or altogether smooth.

In the first division are :

- F. cornucopiæ* . . . Flowers ringent.
- sicula* . . . . . Calyx equal, erect, cyathiform.
- coronata* . . . . . Calyx equal, spreading, campanulate.
- eviocarpa* . . . . . Angles rough. Calyx oblique, six-toothed.
- microcarpa*. . . . Angles smooth. Calyx oblique, entire.

In the second :

- F. puberula* . . . . Angles rough. Calyx with 3 teeth, one of which is larger and longer than the rest.



- F. sphaerocarpa* . . . Angles smooth. Calyx with 3 unequal teeth. Stem-leaves pinnatifid at the base.  
*olitoria* . . . . . Angles rough. Calyx-teeth hardly distinguishable.  
*gibbosa* . . . . . Stem nearly smooth. Margins of the bracteæ entire.  
*carinata* . . . . . Angles smooth. Calyx 0. All the leaves entire.

Neither the uprightness of the bracteæ, nor the roughness of the angles of the stem, appear to be very distinctly marked characters in this genus. They may, however, be noticed as well as the capitate flowers. With respect to the latter character, it is to be observed that the type of the inflorescence in the genus *Fedia*, except, perhaps, in *F. scorpioides*, is that of a dichotomous panicle with the flowers seated in its forks. This arrangement is most distinguishable in the *Psilocælae*, the flowers being there sufficiently separate from each other. In the *Locustæ* it may still be traced, but the upper branches are much shortened, so as to reduce the panicle to a loose head; some solitary flowers are, however, usually discernible. In *F. pumila* the degree of condensation is about the same, but there are no solitary flowers. In all the species where the border is much expanded and nearly equal, as in *F. hamata*, *coronata*, &c., the flowers form dense globular heads, in which, without the help of analogy, we should scarcely be able to trace the typical arrangement; and in *F. echinata* the upper branches of the panicle seem to unite and to form a wedgelike receptacle, on which the flowers are seated.

The character of the leaves seems to have some analogy with that of the inflorescence. The lower leaves in all the species seem to be generally if not always quite entire. The upper ones, though often entire, have a tendency to division in the lower part. These are *dentate* or *inciso-dentate* in the *Locustæ* and *Psilocælae*; pinnatifid in the *Platycaele* and in *F. vesicaria*. The distinction does not depend merely on the depth of the division. The teeth of the first-mentioned sections narrow gradually from the base, and are usually acute. Those of the latter preserve for some distance their original width, or increase it, and are I believe always obtuse. The uppermost leaves are again undivided, being gradually converted into bracteæ. These bracteæ in all the species, except *F. gibbosa*, are ciliato-dentate; and there is, perhaps, always a scariose margin, very narrow in the *Locustæ*, but occupying nearly the whole bracteæ in most of the *Platycaele*.

Perhaps the European species might be thus arranged :

A. Flowers ringent.

1. *F. cornucopiæ*. Upper leaves sessile. Flowers in dichotomous heads ; fruit-stalks thickening upwards.

Coasts of Mediterranean.

B. Flowers nearly regular.

a. Fruit with a corky mass at the back of the seed.

2. *F. olitoria*. Fruit compressed, oblique. Barren cells without a furrow, the dissepiment imperfect. Bractææ leafy, dentato-ciliate. Upper leaves sometimes toothed at the base.
3. *F. gibbosa*. Fruit gibbous (plano-convex). Barren cells each with a furrow at the back. Dissepiment complete. Bractææ quite entire.

Sicily.

b. Section of the fruit crescent-shaped. Two barren cells.

4. *F. turgida*. Fruit cup-shaped, or in external appearance spheroidal with a sector cut out. Crown 0. Flowers in heads.

Rome.

5. *F. carinata*. Fruit oblong, boat-shaped, with a simple blunt crown. Flowers in heads. Upper leaves sometimes toothed at the base.
6. *F. platyloba*. Lobes of the crown with a hooked awn. Calyx somewhat hirsute within. Flowers in heads. Upper leaves sometimes toothed at the base.

Coasts of Mediterranean ?

c. Barren cells 2, hardly touching in the middle. Divisions of the calyx hooked. Flowers in globular heads. Upper leaves generally pinnatifid at the base.

7. *F. hamata*. Crown a campanulate spreading border, hairless within, ending in 6—12 lobes with obtuse sinuses, and each terminating in a hooked awn.

South of Europe.

8. *F. coronata*. Crown nearly erect, villous within, divided down to the base into 6—12 triangular segments.

South of Europe.

9. *F. ciliata*. Crown of 6 setiform ciliate divisions.

Athens.

d. Barren cells 2, hardly touching in the middle, prolonged into teeth or horns, but not forming a membranous calyx.

10. *F. echinata*. Cells quite separate, each terminating in a recurved horn. Flowers in sessile heads on the thickened stalks.

Common on coasts of the Mediterranean.

11. *F. trigonocarpa*. "Fruit triangular, hardly crowned. Angles callous. Flowers in heads. Leaves quite entire, the upper ones oblong-ciliate at the base.

"Constantinople."

12. *F. sphaerocarpa*. "Fruit globose, with 3 very short teeth, of which one is longer, one face umbilicate, the other two-ribbed. Bractæ lanceolate." I follow De Candolle in keeping this separate, although, if it truly belong to this division, I see nothing by which to distinguish it from *F. pumila*.

Sicily.

13. *F. pumila*. Fruit terminating in three very short teeth. Flowers in loose heads. Bractæ scariose, ovate.

South of France.

e. Barren cells 2 contiguous. Crown erect.

14. *F. Auricula*. Crown of one membranous leaf. Flowers distant. Upper leaves inciso-dentate at the base.

France, &c.

α. Crown simple.

β. Tridentate. Crown toothed.

f. Barren cells 4.

15. *F. vesicaria*. Calyx inflated, with minute inflexed teeth. Flowers in globular heads. Bractæ orbicular. Upper leaves pinnatifid at the base.

South-east of Europe.

g. Barren cells wanting, or reduced to a mere nerve. Panicle nearly fastigiate, the lower flowers solitary.

16. *F. lasiocephala*. "Crown with 6 subulate, hooked, smooth teeth, longer than the hirsute border." Reichenbach quotes Betsche for this plant, and says of it "that the barren cells are so far obliterated that the section is like that of *F. eriocarpa*." In other respects it appears closely to resemble *F. hamata*.

17. *F. eriocarpa*. Crown an oblique border with 5—7 straight teeth. Fruit ovoid. Bracteæ erect lanceolate, somewhat scariose. Leaves entire.
18. *F. dentata*. Crown of one leaf, erect, acute, generally toothed at the base. Fruit ovoid. Bracteæ nearly erect. Upper leaves toothed at the base.  
*β. mixta*. Fruit rounder. Crown shorter.
19. *F. puberula*. "Crown oblong, very short, 3—5-toothed. Fruit ovoid, downy. Flowers corymbose. Bracteæ linear erect. Upper leaves very rarely with a tooth at the base."

Sicily.

20. *F. microcarpa*. Crown oblique, entire, obtuse. Fruit nearly sphaerical, rough. Bracteæ erect, somewhat scariose. Leaves entire.

South of Europe.

21. *F. truncata*. "Crown earlike, oblique, entire, as long as the ovoid downy fruit. Bracteæ linear, dilated at the base. Flowers in cymes. Leaves oblong, quite entire."

Crete.

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#### DESCRIPTION OF TAB. XXI.

In all the figures,

- a.* indicates the face of the fruit, *i. e.* on the side of the barren cells.  
*b.* ——— the back of the fruit.  
*c.* ——— the side of the fruit.  
*d.* ——— the summit more highly magnified.  
*d.* ——— the summit seen vertically.  
*e.* ——— section near the summit.  
*f.* ——— *id.* in the middle.  
*g.* ——— *id.* near the base.  
*h.* ——— the vertical section.

Fig. 1. *Fedia olitoria*.

2. *F. uncinata*. Seeds given me by Mr. Bentham from the botanic garden at Avignon.

3. *F. dentata* of Reichenbach, copied from *Pl. Cr. t. 62*. This is cited

by De Candolle under *V. Morisonii*, to which species he refers the *F. dentata* of English Botany. It seems to me to belong to *F. eriocarpa*.

4. *F. dentata*, from Llangollen.
5. *F. dentata*, hairy; found by Mr. Borrer in Sussex.
6. Crown of *F. mixta*: specimen from Dr. Hooker.
7. *F. mixta*, or possibly *F. eriocarpa*, from Llandydno on the Great Ormes Head.
8. *F. microcarpa*, copied from Reichenbach, *Pl. Cr. t.* 114.
9. *F. microcarpa*, from Italy.
10. *F. microcarpa*: specimen from Gussone.
- 10\*. *F. truncata*: copied from Reichenbach, *Pl. Cr. t.* 115.
11. *F. eriocarpa*: copied from De Candolle, *Mémoire sur les Valérianées*.
12. *F. eriocarpa*, from Perigueux.
13. *F. eriocarpa*, from Italy.
14. *F. eriocarpa*, hairless, from Saintes.
15. *F. Auricula*, from Paris.
16. *F. echinata*, from Nice.
17. *F. tridentata*: copied from Reichenbach, *Pl. Cr. t.* 64., a variety of *F. Auricula*.
18. *F. pumila*, from the South of France.
19. *F. hamata*, ditto.
20. *F. coronata*, ditto.
21. *F. platyloba* (*F. rotata* of Reichenbach): copied from *Pl. Cr. t.* 67.
22. *F. ciliata*, from Athens.
23. *F. vesicaria*: specimens gathered by Mr. Bentham in the botanic garden at Montpellier.
24. Section of *F. carinata*; copied from Reichenbach, *Pl. Cr. t.* 61.
25. ————— De Candolle, *Mém. sur les Val.*
26. *F. carinata*, from Steven, in the herbarium of Sir J. E. Smith.
27. *F. carinata*, gathered by Mr. E. Forster at Ongar in Essex.
28. *F. turgida*, from Rome.

